APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,479	09/01/2006	Shaul Hayim	27664U	1467

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THE NATH LAW GROUP
112 South West Street
Alexandria, VA 22314

EXAMINER
CHAO, MICHAEL W

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/591,479	HAYIM, SHAUL
	Examiner	Art Unit	
	Michael Chao	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 July 2009</u>.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14,16 and 17</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-14, 16, 17</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim 15 is cancelled

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Fallon et al.

(U.S. 6,597,812).

With respect to claim 14, Fallon teaches; A method of delivering a data stream

from a remote sender to a remote destination over a communication network, the

method comprising:

Accessing a computer readable medium containing instructions for controlling a

computer system, the instructions comprising computer readable code for

implementation of: (Fallon claim 14)

determining reference points in the data stream being locations in the data

stream where a predefined number of characters fulfill a predetermined criterion, said

reference points being determined without using metadata and without prior placing of

indications within the data stream showing where[] the data begins; ("If there are at

least s consecutively similar characters in the input stream . . . " Fallon column 8 line 28)

registering a digital signature being a value returned from a predetermined

function taken over a predefined range of content, the predefined ranges of content is in

correlation with the reference points; and ("IF a match for Pstring+C is found in the

dictionary (affirmative result in step 212, the dictionary index D[i] (code word)

corresponding to the matching entry is stored in Mcode . . ." Fallon column 9 line 1)

using the digital signatures to locate locally stored content, and using the

reference points or creating a dictionary and using it for synchronizing between currently

received pieces of data and between locally stored matching content. ("search the

dictionary 15 for a code word that corresponds to the character string, and then output

the code word representing the character string. In addition, if the character string that is

built by the dictionary encoder 14 does not match a character string in the dictionary 15,

the dictionary encoder 14 will cause the character string to be added to the dictionary

and a new code word will be associated with that string." Fallon Column 5 line 45)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-6, 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Fallon et al. (U.S. 6,597,812), In view of Bellenger (US 7,460,534).

With respect to claim 1, Fallon teaches; A communication server configured to

deliver a data stream from remote sender to a remote destination over a communication

network, the communication server comprising:

A data storage unit comprising a computer readable medium accessible thereto;

("Using a mapping module 36 (or any suitable dictionary lookup function), the dictionary

decoder will output character strings that are entries in the dictionary 37 to recreate the

original file" Fallon column 12 line 15)

an identification unit configured to identify the pieces of data to be replaced

according to a digital signature that is a function of data contained in said pieces; ("IF a

match for Pstring+C is found in the dictionary (affirmative result in step 212, the

dictionary index D[i] (code word) corresponding to the matching entry is stored in Mcode

. . ." Fallon column 9 line 1)

an anchor-determination unit configured to determine locations in the data

stream where predefined groups of characters from the data stream fulfill a

predetermined criterion, the respective locations of such groups being reference points

to the respective digital signatures associated with the pieces of data in each group,

said reference points being computed by said identification unit and being determined

without using metadata and without prior placing of indications within the data stream

showing where[] the data begins; and ("If there are at least s consecutively similar

characters in the input stream . . . " Fallon column 8 line 28)

a replacement unit configured to replace pieces of data from an intended

incoming data stream to be received from the remote sender with pieces of data

retrievable from said data storage unit according to said reference points. ("When there

is no match found between an indexed string in the dictionary and the current Pstring+C

(negative determination in step 212), the code word stored in Mcode corresponding to

the last successful dictionary search (in which a match for the current Pstring was found) is output" Fallon column 9 line 17)

Fallon does not teach: substantially identical pieces of data. Fallon provides hash values to match dictionary entries, "the data compression system 10 preferably comprises a hash table 21" (Fallon column 6 line 60).

Bellenger teaches that CRC (Bellenger column 9 line 55) hash codes have a probability of error related to the size of the hash, "there will be routing errors if only a 32 bit hash code is used. However, if the number of bits in the hah code is increased and probability is recalculated for typical-sized circuit tables, we find that the probability of error quickly approaches zero for hash codes just slightly longer than 32 bits" (Bellenger column 11 line 53). A person of ordinary skill in the art at the time of invention would have modified Fallon with Bellenger by selecting the size of a hash entry to be a designated number of bits depending upon the acceptable error probability. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Fallon with Bellenger in order to control the error probability as discussed in Bellenger. In reference to this combination, because there is an error probability with the dictionary lookup, the encoded stream with replaced data would be substantially similar to the input stream.

Regarding claim 4, the combination of Fallon in view of Bellenger of claim 1 does not teach: TCP/IP. However, Bellenger teaches that TCP is used for communication over a network ("TCP slow start . . ." Bellenger column 18 line 5). A person of ordinary skill in the art would have further modified Fallon with Bellenger by utilizing TCP/IP. It

would have been obvious at the time the invention was made to a person of ordinary skill in the art to further modify Fallon in order to ensure compatibility with existing networks.

Regarding claim 5, Fallon teaches; further comprising a data storage ("hash table dictionary encoding" Fallon column 5 line 15) accessible thereto, wherein the packets are stored in the data storage in blocks of variable size ("will build a character string comprising two or more characters" column 5 line 40) which is determined according to anchor location on the original data stream. (Fallon column 5 line 35)

Regarding claim 6, Fallon in view of Bellenger; wherein the digital signature is based on any of CRC, SHA1 or DES computed value of a predetermined number of bytes from a selected piece of data. (Bellenger column 9 line 55)

Regarding claim 7, Fallon teaches; wherein the digital signature is calculated from a predetermined number of bytes of data, (Fallon column 5 line 35) the location of said bytes in the data stream is in correlation with at least one anchor, (Fallon column 5 line 35) and the at least one anchor is a pointer to a location in the data stream having a compatibility with the predetermined criterion. (Fallon column 5 line 35)

Regarding claim 8, Fallon teaches; wherein the predetermined criterion is a function of data contained in said pieces of data and is independent of a title, address or routing information of said data. (Fallon column 5 line 35)

Regarding claim 9, Fallon teaches; wherein the function is responsive to a predetermined character combination such that an anchor is assigned upon recognition of said predetermined character combination. (Fallon column 5 line 35)

Regarding claim 10, Fallon teaches; wherein the predetermined character combination is a short string of predefined characters. (Fallon column 5 line 35)

Regarding claim 11, Fallon teaches; wherein a set of anchors is assigned to a respective piece of data, each anchor from the set is in correlation to an n-tuple location in said respective piece of data wherein the function is a hash function yielding a predefined value over the n-tuple. ("in one embodiment of the present invention ... the data compression system 10 preferably comprises a hash table 21 which is utilized by the dictionary encoder 14 during an encoding process to reduce the search time for finding a matching character string in the dictionary 15" Fallon column 6 line 60)

Regarding claim 12, Fallon in view of Bellenger teaches; wherein the hash function is selected from a group containing LFSR, CRC, SHA1, DES, and MD5. (Bellenger column 9 line 55)

Regarding claim 13, Fallon in view of Bellenger does not explicitly teach; wherein files are delivered through P2P communication. A person of ordinary skill in the art at the time of the invention would have understood that the invention of Fallon could be utilized with P2P communication. It would have been obvious at the time the invention was made to a person of ordinary skill in the art that P2P communication could have been utilized with the invention of Fallon in order to increase transmission bandwidth.

Regarding claim 16, Fallon teaches; A system configured to reduce transportation volumes over a communication network, comprising at least one communication server configured to deliver a data stream from a remote sender to a

remote destination over a communication network, the communication server

comprising:

A data storage unit comprising a computer readable medium accessible thereto;

("Using a mapping module 36 (or any suitable dictionary lookup function), the dictionary

decoder will output character strings that are entries in the dictionary 37 to recreate the

original file" Fallon column 12 line 15)

An identification unit configured to identify the pieces of data to be replaced

according to a digital signature that is a function of data contained in said pieces; ("IF a

match for Pstring+C is found in the dictionary (affirmative result in step 212, the

dictionary index D[i] (code word) corresponding to the matching entry is stored in Mcode

. . ." Fallon column 9 line 1)

An anchor-determination unit configured to determine locations in the data

stream where predefined groups of characters from the data stream fulfill a

predetermined criterion, the respective locations of such groups being reference points

to the respective digital signature associated with the pieces of data in each group, said

reference points being computed by said identification unit and being determined

without using metadata and without prior placing of indications within the data stream

showing where[] the data begins and ("If there are at least s consecutively similar

characters in the input stream . . . " Fallon column 8 line 28)

A replacement unit configured to replace pieces of data from an intended

incoming data stream to be received from the remote sender with pieces of data

retrievable from said data storage unit according to said reference points, ("When there

is no match found between an indexed string in the dictionary and the current Pstring+C

(negative determination in step 212), the code word stored in Mcode corresponding to

the last successful dictionary search (in which a match for the current Pstring was

found) is output" Fallon column 9 line 17)

said server being to deliver the data stream to the remote destination over the

communication network. (Fallon column 5 line 5)

Fallon does not teach: substantially identical pieces of data. Fallon provides hash

values to match dictionary entries, "the data compression system 10 preferably

comprises a hash table 21" (Fallon column 6 line 60).

Bellenger teaches that CRC (Bellenger column 9 line 55) hash codes have a

probability of error related to the size of the hash, "there will be routing errors if only a

32 bit hash code is used. However, if the number of bits in the hah code is increased

and probability is recalculated for typical-sized circuit tables, we find that the probability

of error quickly approaches zero for hash codes just slightly longer than 32 bits"

(Bellenger column 11 line 53). A person of ordinary skill in the art at the time of

invention would have modified Fallon with Bellenger by selecting the size of a hash

entry to be a designated number of bits depending upon the acceptable error

probability. It would have been obvious at the time the invention was made to a person

of ordinary skill in the art to modify Fallon with Bellenger in order to control the error

probability as discussed in Bellenger. In reference to this combination, because there is

an error probability with the dictionary lookup, the encoded stream with replaced data

would be substantially similar to the input stream.

Claims 2-3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fallon

in view of Bellenger as applied to claim 1 above, and further in view of Harlan (U.S.

6,076,084).

Regarding claim 2, Fallon in view of Bellenger does not teach; further comprising

a messaging unit for notifying the remote sender to stop delivering intended incoming

pieces of data, said incoming pieces being retrievable from a data storage accessible

thereto. Harlan teaches such a limitation; ("The SPT is generated by calculating a hash

code for each segment which is defined by the selected delimiter. The hash codes from

the old file are transmitted to the sending computer. The sending computer then sends

to the receiving computers those segments in the new file that do not have a hash code

number which matches one of the hash code numbers from the old file" Harlan

Abstract). A person of ordinary skill in the art at the time of invention would have

combined the hash comparison of Harlan by using it between the data providers and

data receivers. It would have been obvious at the time the invention was made to a

person of ordinary skill in the art would have used the hash comparison of Harlan

between the data transmitters of Fallon "In order to shorten the time required to transmit

data" (Harlan Background)

Regarding claim 3, the combination discussed in claim 2 teaches; wherein the

remote sender is a PC delivering data. ("Preferably, the present invention is

implemented as an application program, tangibly embodied on one or more data

storage mediums, which is executable on any machine" Fallon column 4 line 50)

Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fallon

as applied to claim 14 above, and further in view of Harlan (U.S. 6,076,084).

Regarding claim 17, Fallon does not teach: further comprising notifying the

remote sender to stop delivering intended incoming pieces of data, said incoming

pieces of data being retrievable from a data storage unit that comprises the computer

readable media. Harlan teaches such a limitation; ("The SPT is generated by calculating

a hash code for each segment which is defined by the selected delimiter. The hash

codes from the old file are transmitted to the sending computer. The sending computer

then sends to the receiving computers those segments in the new file that do not have a

hash code number which matches one of the hash code numbers from the old file"

Harlan Abstract). A person of ordinary skill in the art at the time of invention would have

combined the hash comparison of Harlan by using it between the data providers and

data receivers. It would have been obvious at the time the invention was made to a

person of ordinary skill in the art would have used the hash comparison of Harlan

between the data transmitters of Fallon "In order to shorten the time required to transmit

data" (Harlan Background)

Response to Arguments

Applicant's arguments, see pages 9-10, filed 07/02/2009, with respect to claims

1-14, 16, have been fully considered and are persuasive. The 35 USC 101 rejection of

1-14, 16 has been withdrawn.

While applicants specific arguments, see below, are not persuasive, Fallon does not teach "replac[ing] pieces of data from . . . with substantially identical pieces of data retrievable from said data storage. More specifically, Fallon is directed toward 'lossless' data compression, which would be identical, rather than substantially identical. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fallon, in view of Bellenger.

Applicant's arguments filed 07/02/2009 have been fully considered but they are not persuasive.

Applicant's argument (pages 11-12) that Fallon does not meet the claim 1 requirement that anchors are determined "without using metadata and without [prior] placing indications within the data stream showing wherein the data begins", is not persuasive. Fallon uses run length encoding which replaces a set of data when there are three consecutive characters in the input stream. ("If there are at least s consecutively similar characters in the input stream . . ." Fallon column 8 line 28). Where the three consecutive characters are analogous to the anchor claimed, and does not rely on prior placement of indications in the data stream. Furthermore, the three consecutive characters are agnostic to any metadata that may be carried in the stream.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Chao whose telephone number is (571)270-5657. The examiner can normally be reached on 8-4 Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571)272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. C./
Examiner, Art Unit 2442

/Andrew Caldwell/
Supervisory Patent Examiner, Art Unit 2442